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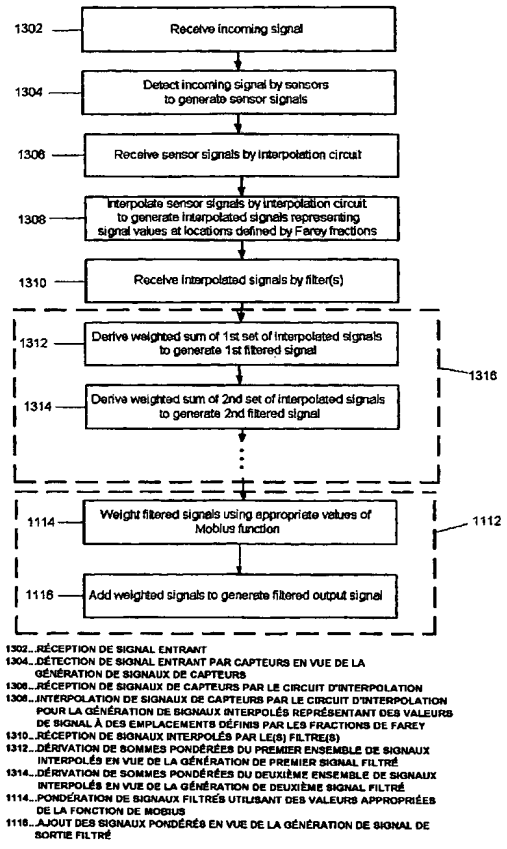
(54) Title: SYSTEM AND METHOD FOR IMAGE SENSING AND PROCESSING



1302...RÉCEPTION DE SIGNAL ENTRANT
1304...DÉTECTION DE SIGNAL ENTRANT PAR CAPTEURS EN VUE DE LA GÉNÉRATION DE SIGNAUX DE CAPTEURS
1306...RÉCEPTION DE SIGNAUX DE CAPTEURS PAR LE CIRCUIT D'INTERPOLATION
1308...INTERPOLATION DE SIGNAUX DE CAPTEURS PAR LE CIRCUIT D'INTERPOLATION POUR LA GÉNÉRATION DE SIGNAUX INTERPOLÉS REPRÉSENTANT DES VALEURS DE SIGNAL À DES EMPLACEMENTS DÉFINIS PAR LES FRACTIONS DE FAREY
1310...RÉCEPTION DE SIGNAUX INTERPOLÉS PAR LE(S) FILTRE(S)
1312...DÉRIVATION DE SOMMES PONDÉRÉES DU PREMIER ENSEMBLE DE SIGNAUX INTERPOLÉS EN VUE DE LA GÉNÉRATION DE PREMIER SIGNAL FILTRÉ
1314...DÉRIVATION DE SOMMES PONDÉRÉES DU DEUXIÈME ENSEMBLE DE SIGNAUX INTERPOLÉS EN VUE DE LA GÉNÉRATION DE DEUXIÈME SIGNAL FILTRÉ
1114...PONDÉRATION DE SIGNAUX FILTRÉS UTILISANT DES VALEURS APPROPRIÉES DE LA FONCTION DE MOBIUS
1116...AJOUT DES SIGNAUX PONDÉRÉS EN VUE DE LA GÉNÉRATION DE SIGNAL DE SORTIE FILTRÉ

(57) Abstract: A system and method for image sensing and processing using the Arithmetic Fourier Transform (AFT). An image sensing array has sensors located based on a set of Farey fractions, each multiplied by a unit block size of the array. Similar sampling can be achieved by interpolating the pixel values of a conventional, uniformly spaced array of sensors. The AFT can be determined extremely efficiently by computing weighted sums of the representative pixel values. Corresponding Discrete Cosine Transform (DCT) coefficients can then be computed by scaling the AFT coefficients. As a result, the number of multiplication operations required to compute the DCT is dramatically reduced.

WO 2005/017816 A1

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